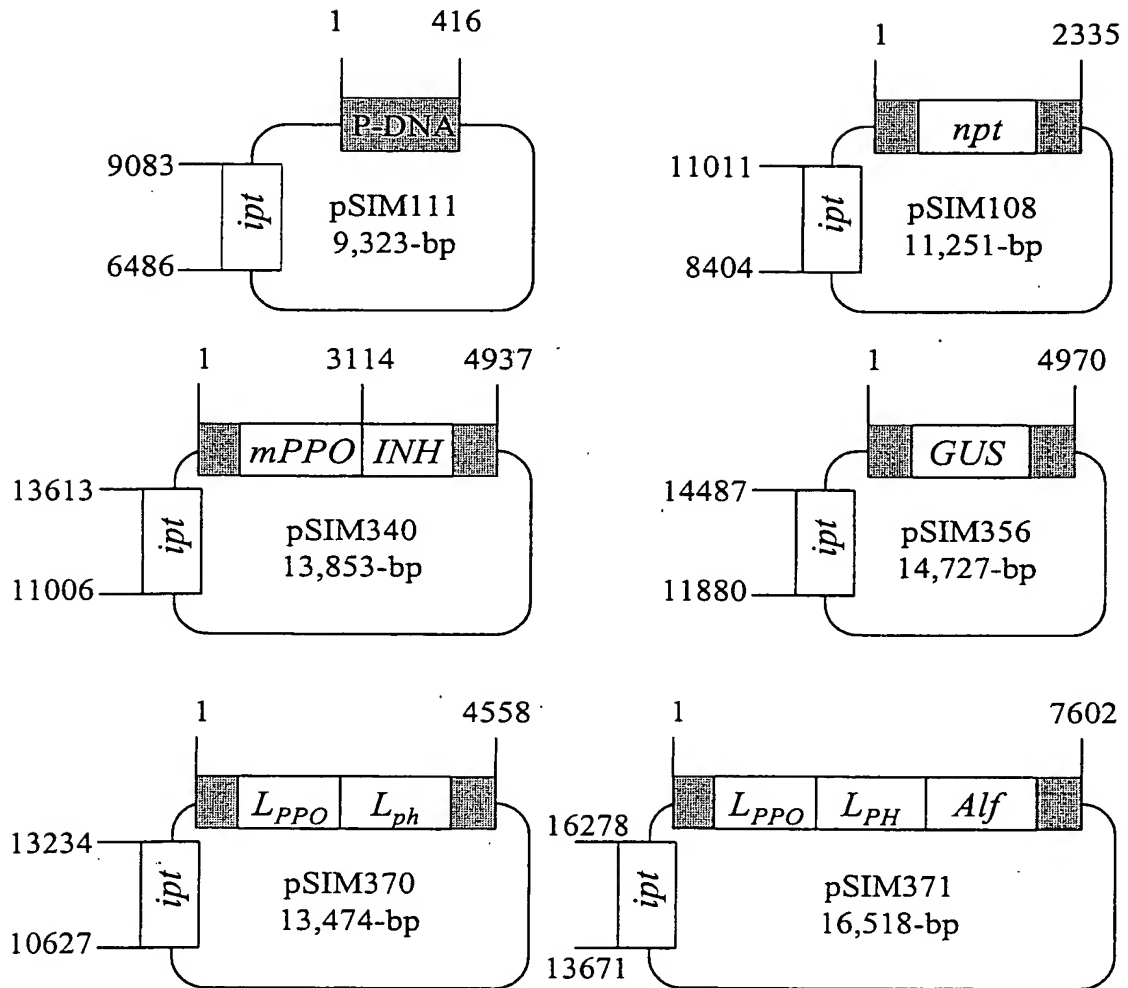


FIGURES

Figure 1. Diagrams for some P-DNA vectors



Title: PRECISE BREEDING
 Inventor(s): Rommens et al.
 Atty. Dkt. No.: 058951-0167

Figure 2. Alignment of potato and tobacco invertase inhibitor proteins

A.

```

St-inh1  MRNLFPILMLITNLALNNDNNNNNNNNNNNNNYLIHATCRETPYYSCLTTLQSGPRSNEVE 60
Nt-inhh  MRNLFPILMLITNLAFN-DNNNSNN-----IINTTCRATTNYPLCLTTLHSDPRTSEAE 53
          *****:*****:* ****.*          :*:*** *. *.*****:*.**:.**

St-inh1  GGDAITTLGLIMVDAVKSIEIMEKIKELEKSNPEWRAPLSQCYVAYNAVLRADVTAV 120
Nt-inhh  GAD-LTTGLVMVDAVKLSIEIMKSIKKLEKSNPELRPLSQCYIVYYAVLHADVTAV 112
          *. * :*****:***** *****:.*:***** * *****:.* ***:*****

St-inh1  EALKKGAPKFAEDGMDDVVAEAQTCEYSFNYYNKLDFPISNLSREIIELSKVAKSIIRML 180
Nt-inhh  EALKRGVPKFAENGMDVAVEAETCEFSFK-YNGLVSPVSDMNKEIELSSVAKSIIRML 171
          *****:*****:* **..*:***:***; ** * *:***:*****.*****

St-inh1  L 181
Nt-inhh  L 172
          *
  
```

B.

```

St-inh1  MRNLFPILMLITNLALNNDNNNNNNNNNNNNNYLIHATCRETPYYSCLTTLQSGPRSNEVE 60
Nt-inh1  MKNLIFLTMFLTILLQTNANN-----LVETTCKNTPNYQLCLKTLSDKRS--AT 48
          *::: : *::* * . * **          *::***:*** *.***.*. *. ** .

St-inh1  GGDAITTLGLIMVDAVKSIEIMEKIKELEKSNP--EWRAPLSQCYVAYNAVLRADVTV 118
Nt-inh1  G--DITTLALIMVDAIKAKANQAAVTISKLRHSNPPAAWKGPLKNCAFSYKVILTASLPE 106
          * ****.*****:*: : .*:*.*** *:.***.* :*:.* *..

St-inh1  AVEALKKGAPKFAEDGMDDVVAEAQTCEYSFNYYNKLDFPISNLSREIIELSKVAKSIIR 178
Nt-inh1  AIEALTKGDPKFAEDGMVGSSGDAQECE---EYFKGSKSPFSALNIAVHELSDVGRAIVR 163
          *:***.* ***** . .:* ** :*: . *:* *. : *****:***

St-inh1  MLL 181
Nt-inh1  NLL 166
          **
  
```

Figure 3. Gene-free expression cassettes



<i>Promoter</i>	<i>SOI*</i>	<i>Spacer</i>	<i>Total size</i>
P:GBSS-small	Leader a/w* <i>R1</i>	Ubi intron	1729-bp
P:GBSS-small	Leader a/w <i>R1</i>	GBSS spacer	1397-bp
P:GBSS-large	Leader a/w <i>R1</i>	Ubi intron	2005-bp
P:GBSS-large	Leader a/w <i>R1</i>	GBSS spacer	1397-bp
P:GBSS-small	Trailer a/w <i>R1</i>	GBSS spacer	2042-bp
P:GBSS-small	Trailer a/w <i>R1</i>	Ubi intron	1705-bp
P:GBSS-large	Trailer a/w <i>R1</i>	GBSS spacer	2313-bp
P:GBSS-large	Trailer a/w <i>R1</i>	Ubi intron	1981-bp
P:GBSS-small	Leader a/w <i>Phosph.</i>	GBSS spacer	-
P:GBSS-small	Leader a/w <i>Phosph.</i>	Ubi intron	-
P:GBSS-large	Leader a/w <i>Phosph.</i>	GBSS spacer	1852-bp
P:GBSS-large	Leader a/w <i>Phosph.</i>	Ubi intron	2184-bp
P:GBSS-large	Leader a/w <i>PPO</i>	Ubi intron	1958-bp
P:GBSS-large	Leader a/w <i>PPO</i>	GBSS spacer	1626-bp
P:GBSS-small	Leader a/w <i>PPO</i>	Ubi intron	-
P:GBSS-small	Leader a/w <i>PPO</i>	GBSS spacer	-

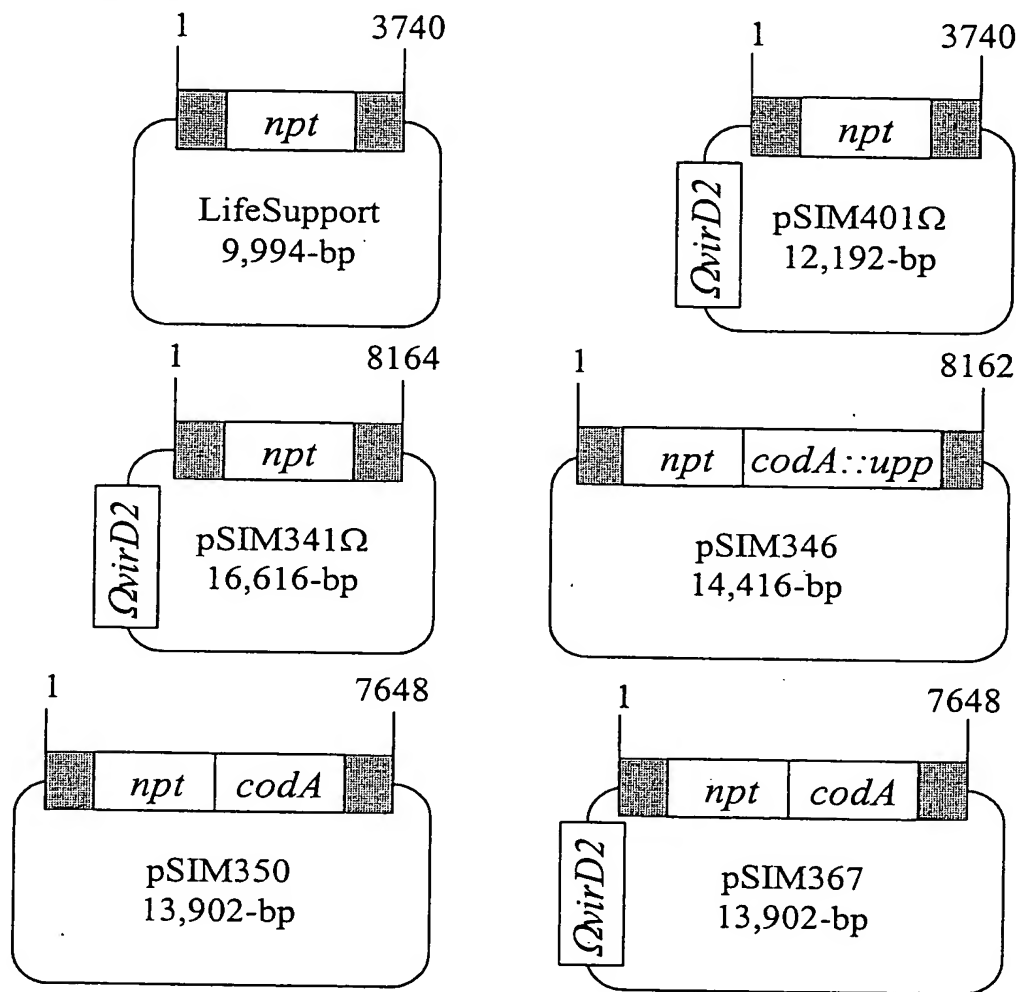
*: sequence-of-interest; **: "associated with"

Figure 4. Alignment of the 3'-end of tuber-expressed PPO genes and trailers associated with these genes. Stop codons ('TAA') are underlined. The trailer sequence used for genetic modification of potato plants was isolated from 'P-PPO3', and is downstream from the stop codon (TTAGTC...ACAATT).

P-PPO3	CTGGCGATAACGGAAGTGGTGGAGGATATTGGTTTGGAGATGAAGATACTATTGCGGTG	60
PPOM-41	CTGGCGATAACGGAAGTGGTGGAGGATATTGGATTGGAAGATGAAGATACTATTGCGGTA	60
PPOM-44	CTGGCGATAACGGAAGTGGTGGAGGATAATGGATTGGAAGATGAAGGTACTATNGCGGTA	60
P-PPO3	ACTCTGGTGCCAAAGAGAGGTGGTGAAGGTATCTCCATTGAAAGTGCAGCATCAGTCTT	120
PPOM-41	ACTTTGGTTCCAAAAGTAGGTGGTGAAGGTGTATCCATTGAAAGTGTGGAGATCAAGCTT	120
PPOM-44	ACTTTGGTTCCAAAAGTTGGTGGTGAAGGTGTATCCATTGAAAGTGCAGCATCAGTCTT	120
P-PPO3	GCAGATTGTTAATTAGTCTCTA-TTGA-ATCTGCTG---AGATTACAC-TTTGATGGAT	173
PPOM-41	GAGGATTGTTAAGTCTCATGAGTTGGTGGCTACGGTACCAAATTTATGTTAATTAGT	180
PPOM-44	GAGGATTGTTAAGTCTCATGAGTTGGTGGCTATGGTACCAAATTTATGTTAATTAGT	180
P-PPO3	GATGCTCTGTT--TTGTTTTCTTGTCTGTTTTTCCTC-TGTTGAAATCAGCTTTGTT	230
PPOM-41	ATTAATGTGTGTATGTGTTTGATTATGTTTCGGTTAAAATGTATCAGCTGGATAGCTGAT	240
PPOM-44	ATTAATGTGTG---TGTTTGATTATGTTTCGGTTAAAATGTATCAGCTGGATAGCTGAT	236
P-PPO3	-GCTTGATTTC---ATTGAAGTTGTTATTCAAGAA-TAAATCAGTTA-CAATT-----	277
PPOM-41	TACTAGCCTTGCCAGTTGTTAATGCTATGTATGAAATAAATAAATAAATGGTTGCTCTCT	300
PPOM-44	TACTAGCCTTCCCAGTTGTTAATGCTATGTATGAAATACATAAATAAATGGTTGCTCTCC	296

Figure 5. Diagrams for some LifeSupport vectors

2-strain approach:



1-strain approach:

